

Claims

This listing of claims, which have not been amended in this paper, replaces all prior versions and listings of claims in the application.

Listing of Claims:

1. (previously presented) A spacer grid (10) for placing and supporting a plurality of longitudinal fuel rods (125) in a nuclear reactor fuel assembly, comprising a plurality of inner strips (30) intersecting each other to form a plurality of guide tube cells (15) to receive guide tubes (13) therein and a plurality of fuel rod cells (26) to receive the fuel rods (125) therein, with a plurality of mixing blades (27) projecting upward from the inner strips (30) at intersections of the inner strips (30); and a plurality of perimeter strips (40) each of which comprises a plurality of cell walls including intermediate cell walls (40') and corner cell walls (40''), the perimeter strips (40) encircling the intersecting inner strips (30) and the corner cell walls (40'') forming outermost corner cells of the spacer grid (10), with a grid spring (50) provided on each of the cell walls (40', 40''), the grid spring (50) comprising:

a vertical opening (53) formed at a central area of each of the cell walls;

a vertical support part (51) extending vertically in the vertical opening (53) between central portions of top and bottom edges of the vertical opening (53) ; and

a fuel rod support part (52) provided at a central portion of the vertical support part (51), the fuel rod support part (52) being bent to have a conformal support surface which is conformal to a fuel rod supported by the grid spring.

2. (previously presented) The spacer grid (10) according to claim 1, wherein the vertical support part (51) is bent at two steps along substantially horizontal bending lines, and the fuel rod support part (52) is bent to be conformal with the fuel rods (125), thus accomplishing a uniform contact pressure distribution when the fuel rod support part (52) is in contact with each of the fuel rods (125).

3. (previously presented) The spacer grid (10) according to claim 1, wherein each of the intermediate cell walls (40') has a coolant flow guide vane (57) and a guide tap (58) on an upper edge thereof such that a plurality of coolant flow guide vanes (57) and a plurality of guide taps (58) are alternately arranged along an upper edge of each of the intermediate cell walls (40'), and each of the corner cell walls (40'') having either a coolant flow guide vane (57) or a guide tap (58) on an upper edge thereof to complete an alternate arrangement of the coolant flow guide vanes (57) and the guide taps (58), in cooperation with the intermediate cell walls (40').

4. (previously presented) The spacer grid (10) according to claim 3, wherein each of the plurality of intermediate cell walls (40') has two guide taps (58) projecting downward at both corners on a lower edge of each of the intermediate cell walls (40'), and each of the plurality of corner cell walls (40'') has a guide tap (58) projecting downward on a lower edge of each of the corner cell walls (40'').

5. (previously presented) The spacer grid (10) according to claim 3, wherein each of the coolant flow guide vanes (57) is

bent toward a center of the spacer grid (10), with a width of each of the guide vanes (57) reducing from a position at which each of the guide vanes (57) is initially bent, each of the guide vanes (57) has a tapered shape, with a peak of each of the guide vanes (57) being rounded.

6. (previously presented) The spacer grid (10) according to claim 3, wherein each of the guide taps (58) is bent toward the center of the spacer grid (10), and is rounded at a bent tip thereof to form an arc-shaped edge.

7. (previously presented) The spacer grid according to claim 1, further comprising inner grid springs on the inner strips, wherein the inner grid springs comprise an opening formed in the inner strips, an inner support part extending in the opening between edges of the opening, and an inner fuel rod support part provided on the inner support part, the fuel rod support part being bent to have a conformal support surface which is conformal to a fuel rod supported by the grid spring, wherein the vertical support part and the inner support part are different in structure.

8. (previously presented) The spacer grid according to claim 7, wherein the vertical support part has a higher spring strength than the inner support part.